EXPRESS MAIL LABEL NO. EV381145655US

DEVICE, SYSTEM AND METHOD FOR AN ADVANCED OXIDATION PROCESS USING PHOTOHYDROIONIZATION

Abstract

A device, system, and method, for the formation of advanced oxidation products by contacting a hydrated catalytic surface of a catalytic target structure with broad spectrum ultraviolet light in the 100 nm to 300 nm range that preferably includes 185nm and 254 nm wavelengths. The catalytic surface reacts with the ultraviolet light energy and hydrate at the catalytic surface to form advanced oxidation products. The catalytic surface in one embodiment includes a hydrophilic agent, titanium dioxide, silver, copper, and rhodium. Preferably, the catalytic surface is coated with a coating that includes the hydrophilic agent, titanium dioxide, silver, copper, and rhodium. A photohydroionization cell (100) that includes an ultraviolet light source (204) and a catalytic target structure (110) in an air environment to form advanced oxidation product is also provided. A U.V. light indicator and a monitor and/or control system for the photohydroionization cell (100) are also provided.